DETAILED ACTION

Response to Amendment

1.   In response to applicant's amendment received on 10/5/2011, all requested

changes to the claims have been entered.

Response to Argument

2.   Applicant's arguments filed on 10/5/2011 have been considered but they are

moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-4 and 6-9 are rejected under 35 USC 103(a) as being unpatentable

over Sato et al. (US 2003/0156204) in view of Pinto et al. (US Patent 7,907,195).

With respect to claim 1, Sato et al. teach a distance calculating step of calculating, by utilizing a distance calculating unit(Fig. 1 ref. label 4), the distance between the coordinates of an image-constituting pixel (a desired point) and predetermined reference coordinates (arbitrary origin) (para [0024]-[0028]);

a distance-correction value calculating step of receiving the calculated distance as an input variable of an N-order function (Graph in Fig. 2) having a plurality of coefficient (variables in table 1) for the input variable, and calculating a distance-correction value (The distance value converted by the converter) as an output value of the N-order function, N being a positive integer (para [0031]-[0037] [0045], Fig. 1, Fig. 2, ref. label 6, converter);

a correction coefficient calculating step of calculating, based on a preliminarily set table (Fig. 2) that represents correspondences between distance-correction values (distance from optical axis) and correction coefficients (correction coefficient), a correction coefficient corresponding to the calculated distance-correction value (para [0044]-[0047]); and

a pixel signal correcting step of correcting a signal for the pixel, based on the calculated correction coefficient (para. [0061]), and

an updating step of updating distance-correction values by changing the coefficients (variables in table 1) for the variable in said N-order function in the distance-correction value calculating step in response to change in optical settings of an image pick-up apparatus (fig. 1 ref. label 7, by supplying the multiplier corresponding to image

pick-up device size information, number of bits shifted (distance correction value) and correction coefficient are determined).

Sato et al. does not disclose expressly that N-order function in N being a positive integer greater than or equal to 2.

Pinto et al. teaches N-order function in N being a positive integer greater than or equal to 2 (Fig. 4A).

Sato et al. and Pinto et al. are analogous art because they are in the "same field of endeavor", shading correction image processing.

At the time of the invention it would have been obvious to a person of ordinary skill in the art to use N-order function in N being a positive integer greater than or equal to 2 in the method of Sato et al.

The suggestion/motivation for doing so would have been that use more accurate function to calculate accurate correction factor.

Therefore, it would have been obvious to combine Pinto et al. with Sato et al. to obtain the invention as specified in claim 1.

With respect to claim 2, Sato et al. teach a correction coefficient calculating step include calculating the correction coefficient corresponding to the distance-correction value that has been calculated in the distance-correction value calculating step, by, based on the preliminary set table, linear interpolation using distance-correction-value data and correction-coefficient data that are stored in the preliminary set table (Fig. 2

para [0044]-[0053]).

With respect to claim 3, Sato et al. teach that he reference coordinates in the

distance calculating step, the coefficients for the variable in the N-order function in the

distance-correction value calculating step, and the distance-correction values and

correction coefficients stored in the table in the correction coefficient calculating step

can be determined for each color component of the pixel (para [0031]-[0037]).

With respect to claim 4, Sato et al. teach that a distance calculating step of

calculating the distance, by regarding as the distance the sum of the distance between

the coordinates of a pixel corresponding to an image signal and the one of two sets of

predetermined reference coordinates, and the distance between the coordinates of the

pixel and the other of two sets of predetermined reference coordinates (para [0023]-

[0030], distance and pseudo distance).

With respect to claim 6, Sato et al. please refer to rejection for claim 1.

With respect to claim 7, Sato et al. please refer to rejection for claim 2.

With respect to claim 8, Sato et al. please refer to rejection for claim 3.

With respect to claim 9, Sato et al. please refer to rejection for claim 4.

With respect to claim 11, Sato et al. teach that change of the coefficients of the

N-order function and change of parameters for the preliminarily set table, said updating

step implements either one or both of the changes, depending on a nature of change in

properties of the image pick-up apparatus and on required tracking performance of

correction for the change in the properties of the image pick-up apparatus (para. [0045],

Table 1, Fig. 2).

With respect to claim 12, Sato et al. please refer to rejection for claim 11.

Conclusion

4.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RANDOLPH I. CHU whose telephone number is (571)270-1145. The examiner can normally be reached on Monday to Thursday from 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vikkram Bali can be reached on 571-272-7415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/RANDOLPH I CHU/
Primary Examiner, Art Unit 2624